

Abstract

The present invention is a polarizing process involving a number of steps. The first step requires moving a flowing mixture of gas, the gas at least containing a polarizable nuclear species and vapor of at least one alkali metal, with a transport velocity that is not negligible when compared with the natural velocity of diffusive transport. The second step is propagating laser light in a direction, preferably at least partially through a polarizing cell. The next step is directing the flowing gas along a direction generally opposite to the direction of laser light propagation. The next step is containing the flowing gas mixture in the polarizing cell. The final step is immersing the polarizing cell in a magnetic field. These steps can be initiated in any order, although the flowing gas, the propagating laser and the magnetic field immersion must be concurrently active for polarization to occur.

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